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Federal Communications Commission
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Dear Sir or Ms.,

23-November-1998

FCC MAIL ROOM


Enclosed, please find an ample number of copies of our comment on WT docket 98-143, a floppy disk for the Electronic Comment System, and a reply card. Please stamp the reply card to confirm service and return it to me. The floppy disk contains one file: PERENS1.PDF, in the PDF format used by Adobe Acrobat.

Please distribute a paper copy of the comment to:

Mr. William Kenard
Ms. Susan Ness
Mr. Harold Furchgott-Roth
Mr. Michael Powell
Ms. Gloria Tristani
Mr. Daniel Phythyon
Ms. D'Wana Terry
Mr. Bill Cross
Mr. Damon C. Ladson
Ms. Loretta Dunn.
Ms. Antoinette Cook Bush

As always, thank you for your assistance! If you have any questions, please contact me via phone at 510-620-3502, or via email at bruce@pixar.com .

Many Thanks


Bruce Perens

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**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	WT Docket No. 98-143
)	
1998 Biennial Regulatory Review --)	RM-9148
Amendment of Part 97 of the Commission's)	RM-9150
Amateur Service Rules.)	RM-9196

Comment of Bruce Perens

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I. INTRODUCTION

This is a portrait of Samuel F.B. Morse with his telegraph machine. I am commenting on the telegraphy requirement for Amateur Radio licensing.

My name is Bruce Perens. I hold an Extra class Amateur Radio License, call sign K6BP. I'm an ARRL member. In 1997, I founded *No-Code International* to organize opposition to Morse code testing of Radio Amateurs, and today I serve as one of the organization's 10 directors. No-Code International has already filed its own comment in this rule-making, this is my personal comment.

The Morse code requirement should be removed from Part 97. Section S25.5 of the International Telecommunications Union treaty, which requires Radio Amateurs to demonstrate proficiency in Morse Code, should be deleted from the treaty. The US delegation should request the removal of S25.5 at WRC-99. If the Commission sees a need to keep any code test in place until S25.5 can be eliminated, the required code speed should be no more than 5 words-per-minute, and the Commission should adopt a *sunset clause* that would end code testing as soon as S25.5 is no longer in force.



While I oppose the Morse code exam, I support those Amateurs who enjoy using Morse code on the air

and wish to continue its use. Use of Morse code should not be *required*, but it should still be *allowed*.

In this comment, I'll discuss the original reasons for the code test and why it is still in place today. I'll present my proposal for eliminating code testing while complying with international treaties and maintaining the high standards for Amateur Radio licensees.

2. WHY THERE IS A CODE TEST TODAY

In 1917, the Navy was concerned about interference from Amateur Radio stations, and they wanted to be able to order all hams off the air in case of war. Since the Navy had no voice radio equipment, they required that all hams understand the Morse code so that they would be sure to understand government orders. The military also needed telegraphers, like the lady in this World War I photo, to provide communications during wartime. Hams were desirable as an already-trained pool of telegraph and radio operators who could go to war quickly, while non-hams would require a long training as signal-corps recruits.



The early military-mandated Morse code requirement was preserved by the predecessors of the FCC, and was brought by nations to early discussions of international radio treaties. The Morse code requirement survives to this day in Part 97 of the FCC rules, and in section S25.5 of the International Telecommunications Union treaty to which the US is signatory.

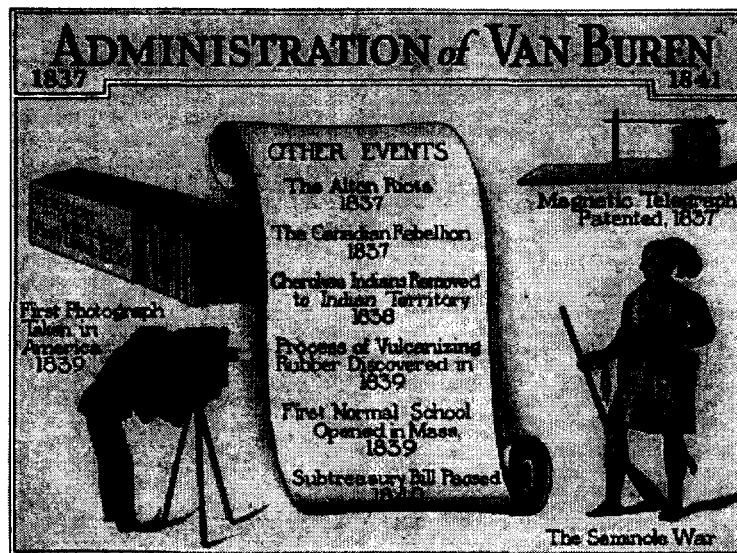
In 1936, The American Radio Relay League (ARRL), a national Amateur Radio organization, was concerned that there might soon be so many hams that they would overrun all available frequencies. ARRL proposed an increase of the code speed requirement from 10 to 12 and one-half words-per-minute, as that would be difficult enough to stop the growth of the Amateur population. The Commission of that time felt that a fractional speed would be awkward, and increased it to 13 words-per-minute. This set an important precedent: before 1936, the code exam was given for practical reasons having to do with communications. Since 1936, its primary function has been to arbitrarily restrict the number of otherwise-qualified people who can become Radio Amateurs.

Since 1936, voice communications have become predominant in Amateur Radio. Today over 50% of hams have the no-code Technician, or slow-code Technician Plus license. Until just a few years ago, Amateurs who had passed high-speed code tests made up the majority, and they made their desire to continue code requirements known to FCC through organizations like ARRL. Now, with over 50% of hams uninterested in Morse, the time has come to delete the code requirement.

3. MORSE CODE IS OBSOLETE, AND THE EXAM SERVES ONLY AS A "HAZING RITE"

As the illustration shows, the "magnetic" (wired) telegraph was patented 161 years ago, during the administration of President Martin Van Buren. There is very little practical use of telegraphy today, and it persists mainly as a hobby activity by Radio Amateurs. Many hams find its use on the air enjoyable, and they should be allowed to continue their hobby. However, testing of Amateur license applicants for Morse code proficiency serves no purpose but to discriminate against otherwise-qualified people. Each applicant must pass a well-justified series of tests on radio operation, electronics, and safety to be granted their ham license. The Morse code

test, unlike the other examinations, is given to test the prospective Amateur's *motivation*, not technical competence. There is a more common name for a "motivation test": hazing. New Radio Amateurs should be examined on the technical proficiency that Part 97 presently requires of them, but they should not be required to learn an arcane and unnecessary technique that has no import to modern telecommunications.



4. AMATEUR RADIO IS IMPORTANT FOR EDUCATION

Many young people learn electronics and communications through hands-on experience as Radio Amateurs. But should we force our students to learn Morse code, like the World War I recruits in this photo, before they go on to the technological education that ham radio can give them? *By doing so, we waste the educational potential of ham radio.*

Amateur Radio provides young people access to the hardware of a communications infrastructure that they would never get by using type-approved, no-modification-permitted equipment. No other service offers the student a capability to design and build practical communications

equipment from individual chips and transistors. Computers and the Internet generally offer experience only at the level of plugging in cards and stringing wires. In contrast, Amateurs have designed and built



their own *satellites*. Over 30 ham radio satellites have been launched, and they provide students with an education in space communication, astrophysics, and other technologies. All hams may operate those satellites, and they can communicate through them or download scientific telemetry and images over the air. Young hams can go beyond voice technology to build and manage their own wide-area wireless data networks, while students would not be allowed physical access to the wired equivalent, an Internet backbone.

However, we've not been taking full advantage of Amateur Radio's educational potential. In fact, there is only an oblique reference to education in Part 97.1's mission statement for ham radio. In my opinion, education should be the *primary* mission of Amateur radio in the next century.

5. WRITTEN EXAMINATIONS COULD BE STRONGER

The written examinations cover safety, on-air operations, and modern radio technology. They are well-justified and should remain in place. Some Amateurs feel that written examinations for Radio Amateur licenses should be strengthened as code tests are removed, so that the tests are more relevant, without the hazing of the code test, but at least as difficult as they are today. This could easily be done by increasing the number of questions on each individual exam. FCC currently requires question pools to be at least 10 times the size of each examination. A temporary suspension of the question-pool-size requirement, coupled with an increase in the number of questions per exam, could be implemented immediately. As the question pools expire, they would be replaced by larger pools, to restore the minimum 10:1 pool-to-exam ratio. As question pools are replaced, new topics can be added. Since one of the major complaints of Amateurs is on-air operating etiquette, additional questions on operating an Amateur station would be appropriate.

Some Amateurs complain that the published question pools for the written Amateur exams are too easy to memorize without learning the material. I feel it's unlikely that a person who could memorize a 500-question pool would be unwilling learn a few simple subjects. However, this alleged "memorization problem" is easy for the Amateur community to address without any new regulation. FCC has placed *no upper limit* on the size of a question pool. The Radio Amateur committees that write the questions could easily increase the size of the pools to make memorization even more unlikely. A simple computer program can be written to make many permutations of the present questions, and thus the pool size could be increased to thousands of questions rather than hundreds.

6. MY PROPOSAL FOR RULE-MAKING

The most desirable rule-making would be a total elimination of the Morse code requirement for all Amateur license classes. If the Commission wishes to retain some minimal code testing until section S25.5 of the ITU treaty is removed, I suggest an immediate reduction to a 5 words-per-minute maximum for all license classes, with a "sunset clause" that would eliminate the Morse code test in the US once the ITU treaty no longer requires it.

This modification of Part 97 would entirely eliminate code testing:

97.501, 97.505, 97.507: Delete all references to elements 1(A), 1(B), and 1(C).

97.503(a): Delete.

This alternative to the above modification would lower the maximum code-test speed to 5 words-per-minute and institute a "sunset clause" to end code-testing once ITU S25.5 is eliminated:

97.503: Element 1(A) should be renamed to "Element 1". Delete text regarding Element 1(B) and Element 1(C).

97.501, 97.505, and 97.507: All references to elements 1(A), 1(B), and 1(C) should be replaced by "Element 1". Add "Element 1 will no longer be required for any class of Amateur license once section S25.5 of the ITU treaty is no longer in force."

7. THE WRC-99 DELEGATION SHOULD ASK FOR S25.5 TO BE REMOVED

In addition to a domestic rule-making, section S25.5 of the International Telecommunications Union Treaty, which requires that Radio Amateurs demonstrate proficiency in Morse Code, should be struck from the treaty. I request that the US delegation ask for the removal of this obsolete provision at WRC-99 and at subsequent World Radio Conferences as necessary. Until it's eliminated, S25.5 will cause us complications regarding CEPT (international) Amateur licenses and reciprocal operating permission for Amateurs who travel abroad, because of differences between the Morse code examination requirements of each country. Once S25.5 is removed, Morse code proficiency need not be considered in calculating the privileges that should be granted to US Amateurs operating in different countries.

8. ADMINISTRATIVE INFORMATION

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Declaration of service: I swear that on this day November 23, 1998, I assembled 22 paper copies of this document, a cover letter with routing list, and a floppy disk containing an electronic copy of this document. I placed these items in an envelope addressed to Secretary, Federal Communications Commission, 1919 M Street N.W., Washington DC 20554. I affixed ample postage and caused the items to be mailed. Only the paper copies of this document will be signed.


Bruce Perens

23-November-1998

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